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## Theme - The Multi-Sensory Language of Life

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The perfect meal is not only what is on your plate, it is an experience, one that can be heightened or diminished by the circumstances in which it is consumed. This is fertile ground for design to help rethink our understanding of what constitutes food, and the ways we should be engaging with it.

# The Multi-Sensory Language of Life

## Jozef Youssef's sense for food 廚師的多元感官餐飲理論

Text by Steve Jarvis  
Photographs courtesy of Kitchen Theory

### Jozef Youssef

Founded Kitchen Theory experimental dining experiences in 2014. Previously a gourmet chef trained at Michelin-starred restaurants, and author of "Molecular Gastronomy at Home", an introduction to the science behind modernist culinary techniques.  
<https://kitchen-theory.com/>

Jozef Youssef，實驗性餐飲體驗公司 Kitchen Theory 的創始人。曾經是經米芝蓮餐廳培訓的廚師。Youssef 亦撰寫了介紹現代烹飪科學的書籍《Molecular Gastronomy at Home》。  
<https://kitchen-theory.com/>





participants. The diners left with a new sensory vocabulary helping them to understand space and time. Youssef argues that "Food as a medium for education is rich in possibilities, and there is a lot of room for gastronomy as a whole to be used in education."

Kitchen Theory's work is, by nature, cross-disciplinary, "To push the boundaries of your art you can't be talking to the people only in your industry, you need to be looking outside in completely different fields. We work with psychologists, astrophysicists, surgeons, chemists, microbiologists, mechanical engineers, as well as people in fashion, and music," explains Youssef. What results is a blend of science and performance art, that is accompanied by a compelling and digestible narrative capable of changing perspectives and pushing boundaries for researchers, chefs and diners alike.

### Senses re-shape our world

Youssef is convinced of the power sensory design to reshape people's relationship with food. "We have gone into schools and worked with kids and it is incredible to see the impact that sensory play with food has on their reluctance to engage new foods, and provides an opening to introduce more whole foods into their diets. In aged care, there are a lot of opportunities to help patients with degenerative diseases such as Alzheimer's, in areas such as ensuring they are getting the right amount of calories and nutrients in their diets, and helping them remember to eat. There are lots of applications for sensory design and the future is exciting."



"So I have two wines, one a dry white, the other a full-bodied red. I also have two pieces of music, one with an energetic violin, the other a sombre cello. Which wine would you pair with which piece of music?" asks Jozef Youssef, the creative force behind Kitchen Theory, a multi-sensory gastronomy design studio. "Obviously red with the deeper cello music," I replied. "Yes, but why?" he responds. I prepared myself for a crash course in multi-sensory dining.

### Flavour is a sensory experience

While our hands and mouth do the mechanical work of consuming food, taste is a far more complex subject. Youssef explains, "We perceive flavour, not in our mouths but in our brains. It is a construct of the mind rather than a sensory perception of the mouth. It comes with expectations, perceptions, enjoyment and judgements that all reside in the brain, which is being fed by information from each of our senses. Taste, touch, smell, vision, audio, all of them help paint this rich picture of flavour."

Youssef first encountered the concept of multi-sensory gastronomy when he happened upon a lecture of the same name given by Charles Spence, a professor of experimental psychology at Oxford University. Hearing that touch, sound, smell, and sight could all trigger a strong emotional response that affected the way people perceived taste, proved life changing for Youssef. But he was also conscious that he was the only chef at the talk, and this was emblematic of the gap that exists between food-related research and its practical application in restaurants and kitchens.

Fast forward a decade, Youssef now heads up Kitchen Theory, a design studio creating food experiences that combine cutting-edge scientific research and fine dining. Whether it is an educational workshop, a corporate PR event, or dining at their in-house restaurant The Chef's Table, a Kitchen Theory food experience is designed to challenge your senses and preconceptions. Attend one of their events, and you could find yourself eating jellyfish with a crunching "audio garnish," having projection mapping darting over your table, or even smoothing out a whiskey neat by simultaneously stroking velvet. You are eating with your senses awakened.

### Taking science from the lab to the plate

For seven years Kitchen Theory's multi-sensory dining has been pushing gastronomy into the uncharted territory between science and art. For example, they have encapsulated 'synesthesia'—a neurological phenomenon of cross-stimulation of senses—into a seven-course experience that brings diners into closer touch with their senses. "Synesthesia is a chance to stimulate people into greater awareness of their surroundings and engagement with what they are consuming, and leaves them wondering at what they have been missing, and adds extra dimensions for what they will consume in the future," says Youssef.

To take another example, the g-Astronomy project saw Kitchen Theory working with astrophysicists from Imperial University. Their goal was to create a multi-sensory experience of taste, texture, and touch to explain the highly complex ideas underpinning the universe to visually impaired





Kitchen Theory is designing food experiences that encourage people to make more sustainable and nutritious food choices. "These are not just individual choices, but choices that need to be made by organisations and institutions that have a profound effect on people's daily lives, in hospitals, schools and supermarkets and so on. Things such as plate colour, music, ambient smells can all heavily influence the sensorial experience. This leaves options for designing the eating experience to make positive modifications such as a less sugar, or less salt, or any other of the vast array of options, such as sense of satiety, and improve people's relationship with food."

Youssef is clear-eyed about tackling the problems surrounding our relationship with food. "As a chef, as a father, as a human, as someone that loves food and being in good health, I just think it is sad that food, as something we take so much enjoyment and pleasure out of, is killing us." He continues, "The Kitchen Theory mission is to improve global wellbeing through innovation in gastronomy. We work with some of the largest companies, such as McDonald's and Haribo, and the idea is to influence and do work and research that will nudge them toward developing technologies, systems, and food products that help get people on the right track."

### Designing a nutrition revolution

Youssef is excited for the future of collaboration between gastronomy and the sciences. Kitchen Theory's latest collaborative project, the HyperFoods cookbook, brings together computer scientists, biophysicists and analytical chemists to identify the nutritional "dark matter" that can promote better health. "In a nutshell, the research uses artificial intelligence, machine learning and natural language processing to identify disease-beating molecules in foods." Youssef believes we are on the cusp of a "nutrition revolution, one that has the potential to reformulate our relationship to medicine and pharmaceuticals, and stimulate a wave of functional food that will make you healthier, smarter, fitter or whatever. The possibilities are limitless."

Asked what advice he would give designers wanting to work with the medium of food, he was quick to reply. "There should be an appreciation for what food represents and what ingredients mean to us as human beings, and this should always be respected. Learning how to cook will give any food artist or food designer an appreciation for food and what it means, and for flavour, and this will give them a really good basis from which to inspire their work. Food is needed and celebrated and this means we must have a better understanding of it, not only to better address the food-related issues we face in the world, but it will help us with designing more nutritious and sustainable food systems for the future."

**對** Jozef Youssef 來說，飲食是一項多感官活動。這位 Kitchen Theory 的始創人正通過結合尖端科研成果和 fine dining，創造無與倫比的餐飲體驗。這都要源於他十年前在牛津大學參加的 Multi-Sensory Gastronomy 講座。實驗心理學教授 Charles Spence 向聽眾介紹了觸覺、聽覺、嗅覺和視覺與人們評判味道的緊密聯繫。作為參加講座的唯一廚師，Youssef 感受到學術界食物研究與現實中餐廳廚房的鴻溝。

於是 Kitchen Theory 便成立了。不論是教育工作坊、公司公關活動或是在自家的 The Chef's Table 餐廳用餐，Kitchen Theory 都本着挑戰食客感官和既定印象的宗旨進行設計。海蜆佐以酥脆的「音頻配菜」、以餐桌為舞台上演全息投影、或利用撫摸天鵝絨來令手中的純飲威士忌口感更加絲滑，一切都有可能發生。

在七年時間裏，Kitchen Theory 使用多感官用餐體驗將餐飲逐漸推向科學和藝術的中間地帶。它們將共感 (synesthesia) ——一種對單一通道的刺激卻引起多通道感覺的神經現象——製成一個七道菜的餐飲體驗；它們與天體物理學家合作，使用口味、質感和觸覺來向視覺障礙人士解釋宇宙的面貌。對此，Youssef 說：「食物作為教育媒介是蘊含無限可能的。飲食在教學中的應用可能性也存在巨大空間。」

同時，Youssef 也相信通過感知設計重塑人們與食物的關係。「我們拜訪學校，發現多感官飲食的遊戲能夠減低學生對嘗試新食物的抗拒心理。在長者護理中心，也有不少多感官飲食的應用場景，比如患有老年癡呆症的人士。這可以幫助他們維持身體所需的營養和熱量，並幫助他們記住需要進食。」他說。

Kitchen Theory 的工作自然是多維度跨領域的。「若想令你的藝術作品不斷突破進取，你不能永遠都跟同一行業內的人溝通，甚至還需要看向完全相反的領域。我們與心理學家、天體物理學家、外科醫生、化學家、微生物學家、機械工程師和時尚領域工作者以及音樂人都有合作。」Youssef 解釋。在如此龐大的知識體系與經驗的協同工作下，這些科學與藝術的結晶品，持續不斷地為學者、廚師和食客轉換視角、擴張思想局限。

Youssef 對未來 Kitchen Theory 的食物與科學合作項目非常期待。它們的最新項目，HyperFoods Cookbook，將電腦科學家、生物物理學家和分析化學師聚在一起發現營養學中對身體有益的「暗物質」。

「人體需要食物，人類也熱愛食物。這也意味着我們需要更好地了解它，不僅是為了解決現在國際上的糧食問題，更是要給未來設計出更營養、更可持續的食物系統。」

